

## **REMARKS**

Applicants have amended Claims 1, 4, 5 and 11. Applicants respectfully submit that no new matter has been added by the present amendment and support for the amendment can be found generally throughout the Specification, and specifically at page 6, lines 18-22.

### **I. Rejection under 35 U.S.C. §103(a).**

Claims 1-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Porzio, et al. in view of Fulger, et al. The Office Action did not specify which Porzio, et al. or Fulger, et al. reference was the basis for the rejection, and accordingly Applicants have based the following arguments assuming that the present rejections were based on Porzio, et al. (U.S. Patent No. 5,603,971) and Fulger, et al. (U.S. Patent No. 5,601,865) which are the parent patents to Porzio, et al. (U.S. Patent No. 5,897,897) and Fulger, et al. (U.S. Patent Nos. 5,792,505 and 5,958,502) all of which were cited in the Applicant's Information Disclosure Statement.

The Office Action states Porzio, et al. discloses encapsulation compositions and a process for preparing them, the process comprising the steps of forming a carbohydrate matrix by heating the carbohydrates in an extruder at a temperature in the range of 194 to 320 °F to form a melted matrix and then mixing an active agent into the melted matrix. The Office Action also states that Porzio, et al. does not teach treating the particles with an inert gas or the size of the particles as claimed.

Further, the Office Action states that Fulger, et al. discloses a process for flavor encapsulation in a carbohydrate matrix, wherein the particles are cooled by ambient air on trays, by atmospheric pressure cylindrical collection in an ice bath, cooled in cold 99% isopropanol or by pressure cooking.

Therefore, according to the Office Action, it would have been obvious to one skilled in the art to use any known method in the art to cool the extruded composition of Porzio, et al., such as cooling using air as shown by Fulger, et al. The Office Action also states that the velocity at which the air is delivered quickens the cooling process and thus it would have been within the skill of one in the art to determine the

optimum velocity which would give the most optimum cooling through routine experimentation. Applicants respectfully traverse this ground of rejection.

Amended Claim 1 of the present invention is directed to process for producing encapsulated flavorings, comprising the steps of emulsifying the flavoring into a carbohydrate melt, wherein said carbohydrate melt is prepared from a carbohydrate mixture melted by heating to 80 to 120°C, to form a resultant melt and producing particles from the resultant melt, wherein the particles are treated with an inert gas at a gas velocity of 0.2 to 4 m/s. Claims 2 through 4 depend upon Claim 1 and further define the inert gas. Amended Claim 5 is directed to a carbohydrate-encapsulated flavoring particles, produced by emulsifying the flavoring into a carbohydrate melt, wherein said carbohydrate melt is prepared from a carbohydrate mixture melted by heating to 80 to 120°C, to form a resultant melt and producing particles from the resultant melt, wherein the particles are treated with an inert gas at a gas velocity of 0.2 to 4 m/s. Claims 6 through 10 depend upon Claim 5 and further define the flavor particle with respect to glass transition temperature, diameter, flavoring content, carbohydrate mixture and flavoring. Amended Claim 11 is directed to foods comprising carbohydrate-encapsulated flavorings wherein said carbohydrate-encapsulated flavoring particles are produced by emulsifying the flavoring into a carbohydrate melt, wherein said carbohydrate melt is prepared from a carbohydrate mixture melted by heating to 80 to 120°C, to form a resultant melt and producing particles from the resultant melt, wherein the particles are treated with an inert gas at a gas velocity of 0.2 to 4 m/s.

“To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (Fed. Cir. 1974)”. Applicants also respectfully submit that “in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claims limitations. The teachings or suggestions to make the claimed combination and the reasonable expectation of

success must both be found in the prior art, and not based on applicants' disclosure." See MPEP § 2142, citing In re Vaeck, 947 F.2d 488, 20 USPQ 2d. 1438 (Fed. Cir. 1991).

Applicants respectfully submit that Porzio, et al. discloses that carbohydrate-based glassy matrices, which are stable in the glassy state at ambient temperatures, may be prepared by the use of aqueous plasticizers with melt extrusion. As stated in the Office Action, Porzio, et al. does not teach or suggest all the limitations of the claimed invention. Specifically, Porzio, et al. does not teach or suggest treating the particles with an inert gas at a gas velocity of 0.2 to 4 m/s.

Applicants respectfully submit that the deficiencies of Porzio, et al. are not overcome by the combination of Porzio, et al. and Fulger, et al. Fulger, et al. teaches a process for incorporating a volatile component into a matrix comprising forming a melt comprising said volatile component and said matrix, solidifying said melt under a pressure sufficient to prevent substantial volatilization of said volatile component. The object of Fulger, et al. was to provide a technique for encapsulating flavor components, which have low boiling points in a dense non-porous, encapsulate and to formulate a dense amorphous solid. See column 4, lines 9–19. In the Examples, Fulger, et al. discloses cooling the samples prepared by ambient air on trays, by atmospheric pressure cylindrical collection in an ice bath, by 99% isopropanol at atmospheric pressure and by pressure cooling in a cylindrical collection vessel in an ice bath. According to Fulger, et al. the samples cooled via pressure cooling in a cylindrical collection vessel in an ice bath were dense. See Column 13, line 20 – column 14, line 31.

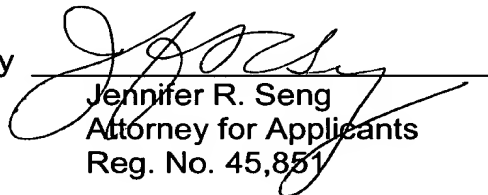
Fulger, et al. does not teach or suggest treating the particles with an inert gas at a gas velocity of 0.2 to 4 m/s. In the alternative Fulger, et al. teaches cooling the particles via pressure cooling in a cylindrical collection vessel in an ice bath. Therefore, if one skilled in the art was motivated to combine the teachings of Porzio, et al. and Fulger, et al. the instant invention would not be obvious because neither reference teaches all the claimed limitations, specifically neither reference teaches treating the particles with an inert gas at a gas velocity of 0.2 to 4 m/s.

The Office Action states that it would have been within the skill of one in the art to determine the optimum velocity which would give the most optimum cooling through routine experimentation. However, Applicants respectfully submit that neither reference teaches treating the particles with an inter gas at any velocity, and accordingly Applicants submit that one skilled in the art would not have been motivated by the teaching of Porzio, et al. or Fulger, et al. to treat the particle with an inert gas at a gas velocity of 0.2 to 4 m/s. Applicants also respectfully submit that the present invention is directed to a process for encapsulating particles having low surface flavor loading by the flavoring and a high glass transition temperature and not merely to a process to quicken the cooling of the particles.

For at least these reasons, Applicants respectfully submit that the claimed invention would not have been obvious in view of Porzio, et al. or Fulger, et al. and accordingly Applicants request reconsideration and withdrawal of this ground of rejection and early allowance of Claims 1-11.

Respectfully submitted,

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**VERSION OF THE CLAIM AMENDMENTS SHOWING CHANGES MADE**

Please amend Claims 1, 4, 5 and 11 as follows:

1. (Amended) A process for producing encapsulated flavorings, comprising the steps of emulsifying the flavoring into a carbohydrate melt, wherein said carbohydrate melt is prepared from a carbohydrate mixture melted by heating to 80 to 120°C, to form a resultant melt and producing particles from the resultant melt, wherein the particles are treated with an inert gas at a gas velocity of 0.2 to 4m/s.

4. (Amended) A process according to Claim 1, wherein said particles are treated in a gas stream at a gas velocity of ~~0.2 to 4~~ 0.5 to 2 m/s.

5. (Amended) Carbohydrate-encapsulated flavoring particles, produced by emulsifying the flavoring into a carbohydrate melt, wherein said carbohydrate melt is prepared from a carbohydrate mixture melted by heating to 80 to 120°C, to form a resultant melt and producing particles from the resultant melt, wherein the particles are treated with an inert gas at a gas velocity of 0.2 to 4 m/s.

11. (Amended) Foods comprising carbohydrate-encapsulated flavorings wherein said carbohydrate-encapsulated flavoring particles are produced by emulsifying the flavoring into a carbohydrate melt, wherein said carbohydrate melt is prepared from a carbohydrate mixture melted by heating to 80 to 120°C, to form a resultant melt and producing particles from the resultant melt, wherein the particles are treated with an inert gas at a gas velocity of 0.2 to 4 m/s.